EVOLUTIONARY ACQUISITION & THE FUTURE OF ESC

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"…enhanced command & control, and much improved intelligence, along with other applications of new technology, will transform the traditional functions of maneuver, strike, protection and logistics. These transformations will be so powerful that they become, in effect, new operational concepts."

--Joint Vision 2010

Air Force Goal

The ability to collect information, rapidly correlate it, and then quickly disseminate it to the users and commanders promises to change the nature of warfare. As we look into the first quarter of the 21st century, we believe that we will have the ability to find, fix, track, and target anything of significance that either moves or is located on the face of the earth in near real time."

General Ronald Fogleman

Integrated Air Force C4I Systems

Non-DOD

DOD

Air Force

FEMA

FAA RCCs

Allied Gvt's

NCA

NDOC

NASA

To: Satellite Launch Ranges, NU/CC, AFSPOC & SPADOC

USTRANSCOM Cmd Ctr

To: R0CCs/SOCCs & AIA OSC

USSTRATCOM Cmd Ctr

NMCC

To: JTF Cmd Ctr , & Theater Cmd Ctrs

NAVSPOC

To SOC, AIA OSC, AFSOC Cmd Ctr, & JTF Cmd Ctrs

ARSPOC

To: Supply Ctrs

Transport Ops

To: AOC & AFSOC Cmd Ctr

ICBM LCCs

AFSPOC

N/U CC

AFSCN

User Agencies

Satellite Systems

To: Trans Ctrl Ctrs

TACC

To: Theater Commands & JTFs

Mobility A/C

AFFOR R/F

To: FAA RCCs

SATELLITE LAUNCH RANGES

To NASA

SPADOC

CIA

To: CIO

To: AOC

ROCC/ SOCC

ADOC

MW

To NASA

DMA

To: NSA & Other Nat'l Agencies

Medical Facilities

To: AOC

TALCE

To: AFFOR R/F & ROCC/SOCC

To: NMCC, FAA RCCs, Unified Cmds, JTFs, JICs, WOC/SOCs,AOC, MAJCOM & Theater Cmd Ctrs

AIA OSC

DIA

RAMCC

To: TACC

To: Deployed SOFs, JTFs, Cs, & Theater Cmd Ctrs

NAIC

CIO

To: CIA

Service Air Defense Units

AOC

AWACS

ABCCC

ASOS/ TACP

AFAC

Combat A/C

To: Theater Cmd Ctrs & Nat'l Agencies

AF MAJCOM Ops Ctrs

To: DIA & DMA

National Agencies

Commercial Air Carriers

JSTARS

To: AOC

Ops Centers

Service Land Maritime Forces

WOC/ SOC

To: AIA OSC

Deployed AFSOC Cmd Ctr

To: TACC

To: FMO Ctrs

To: AF MAJCOMs

Maint Ctrs

IWSM Ctrs

Wx Sources

Contractors

To: CRC/ FACP

To: AFIWC

AFSOC Cmd Ctr

16th SOW

Trans Control Ctrs

To: Service Air Defense & Service Land & Maritime Forces

352 SOG

Supply Ctrs

Logistics Agencies

Allied Forces Ops Ctrs

JTF Cmd Ctr

To: NMCC

To: 352 & 353 SOG, USSOCOM, TACC

353 SOG

SOF A/C Units (USAF/USA)

To: Transport Ops

To: Multi Users

Theater Cmd Ctrs

SOC

To: AFSOC Cmd Ctr

USSOCOM Cmd Ctr

JSOTF

Deployed SOF Forces

To: AF MAJCOM Ops Ctrs, AIA OSC & USTRANSCOM Cmd Ctrs

To: Multi Users

JICs

Integrated Air Force C4I Systems

|	
Combat Operations (blue)	**Intel Support**
Mobility Operations (yellow)	**Mission Support**
Space Operations (green)	**DOD & External Agencies**
Special Operations (red)	

Rev 3R, 24 July 95 ◢ Joint or Combined (operated by AF)
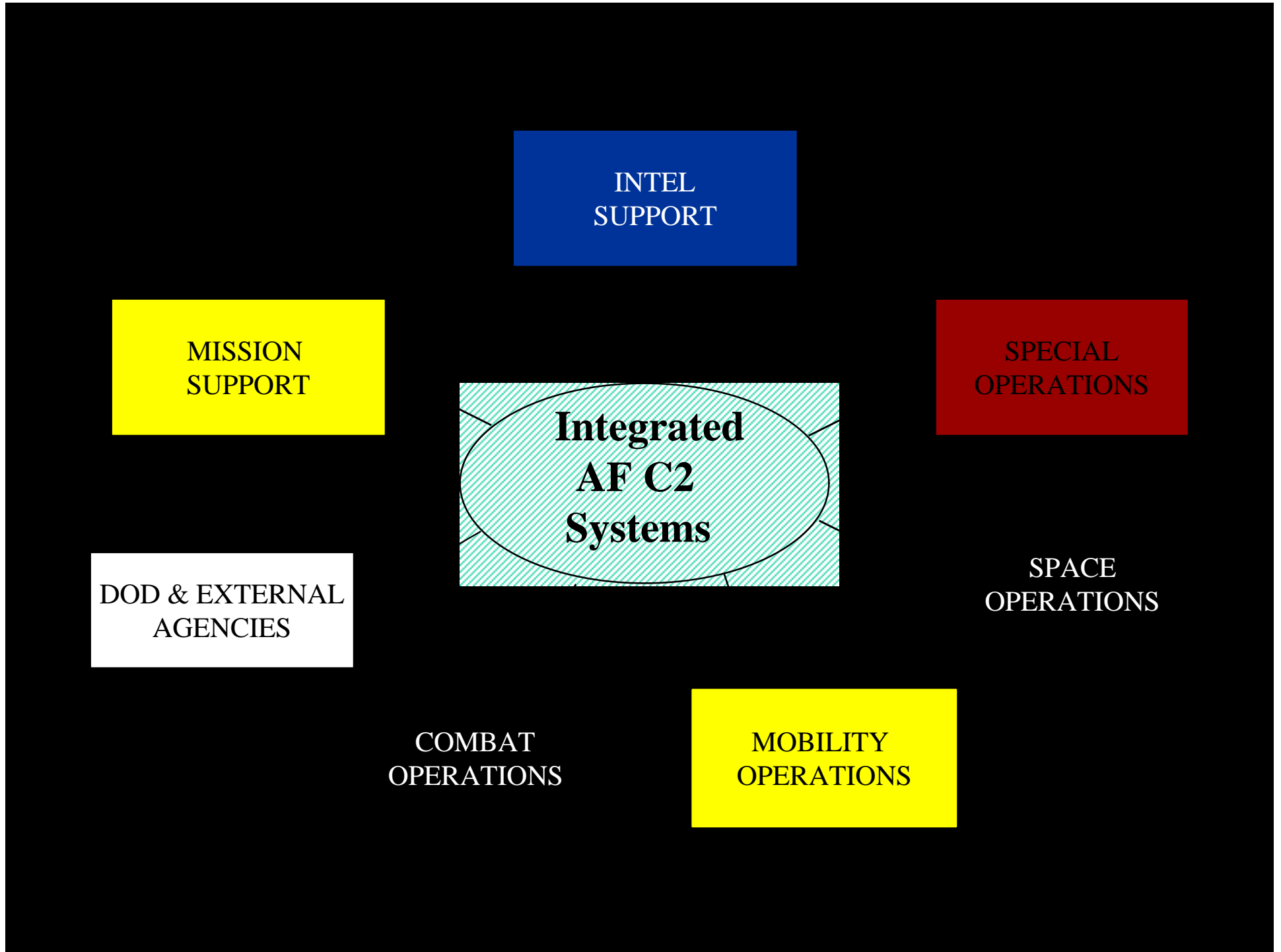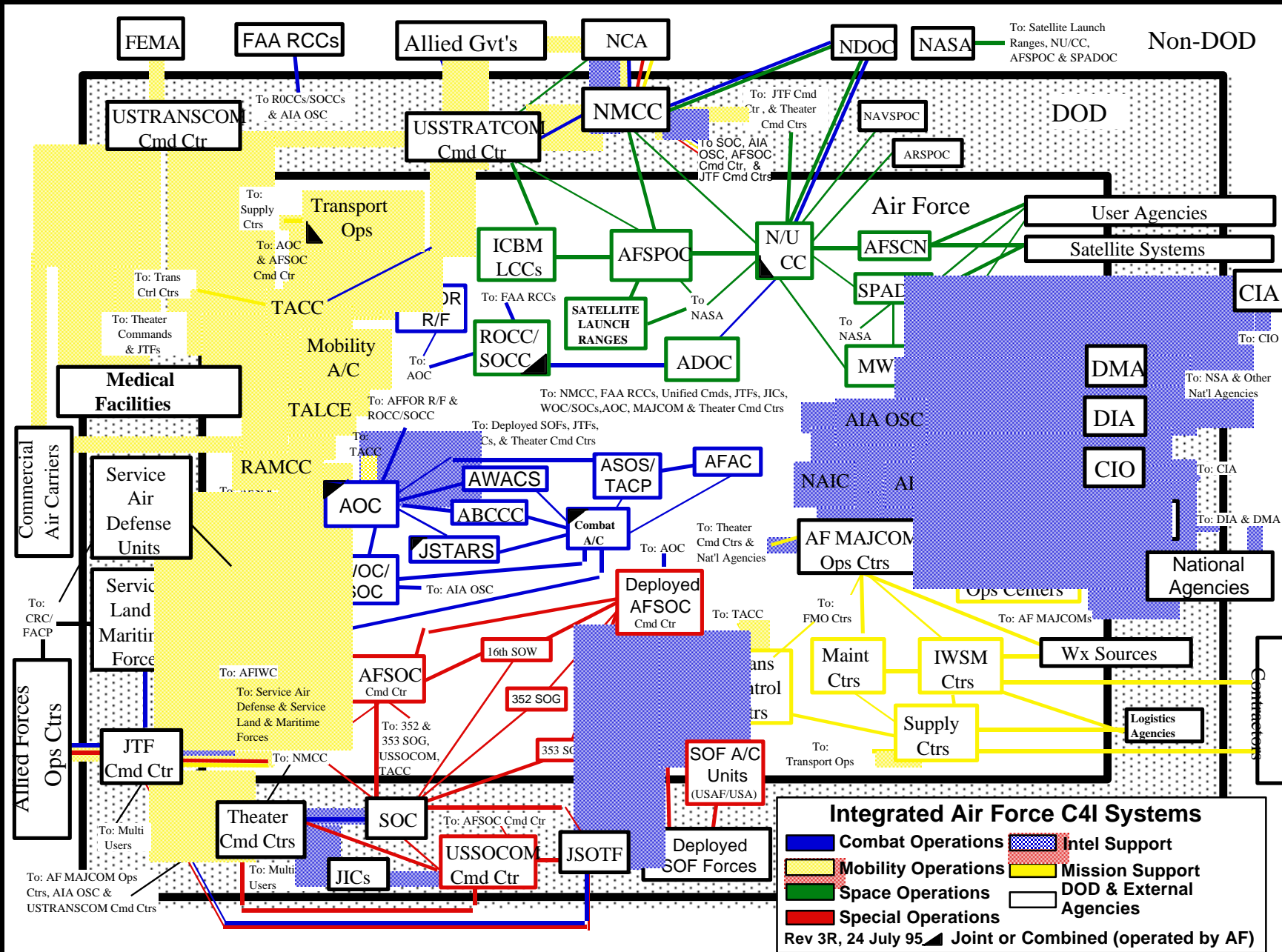
System Activities

- Global Awareness
  - Gather Information
- Global Grid
  - Transmit Information
- Dynamic Assessment, Planning and Execution
  - Use Information

Defense Outlays As A Share Of Gross Domestic Product
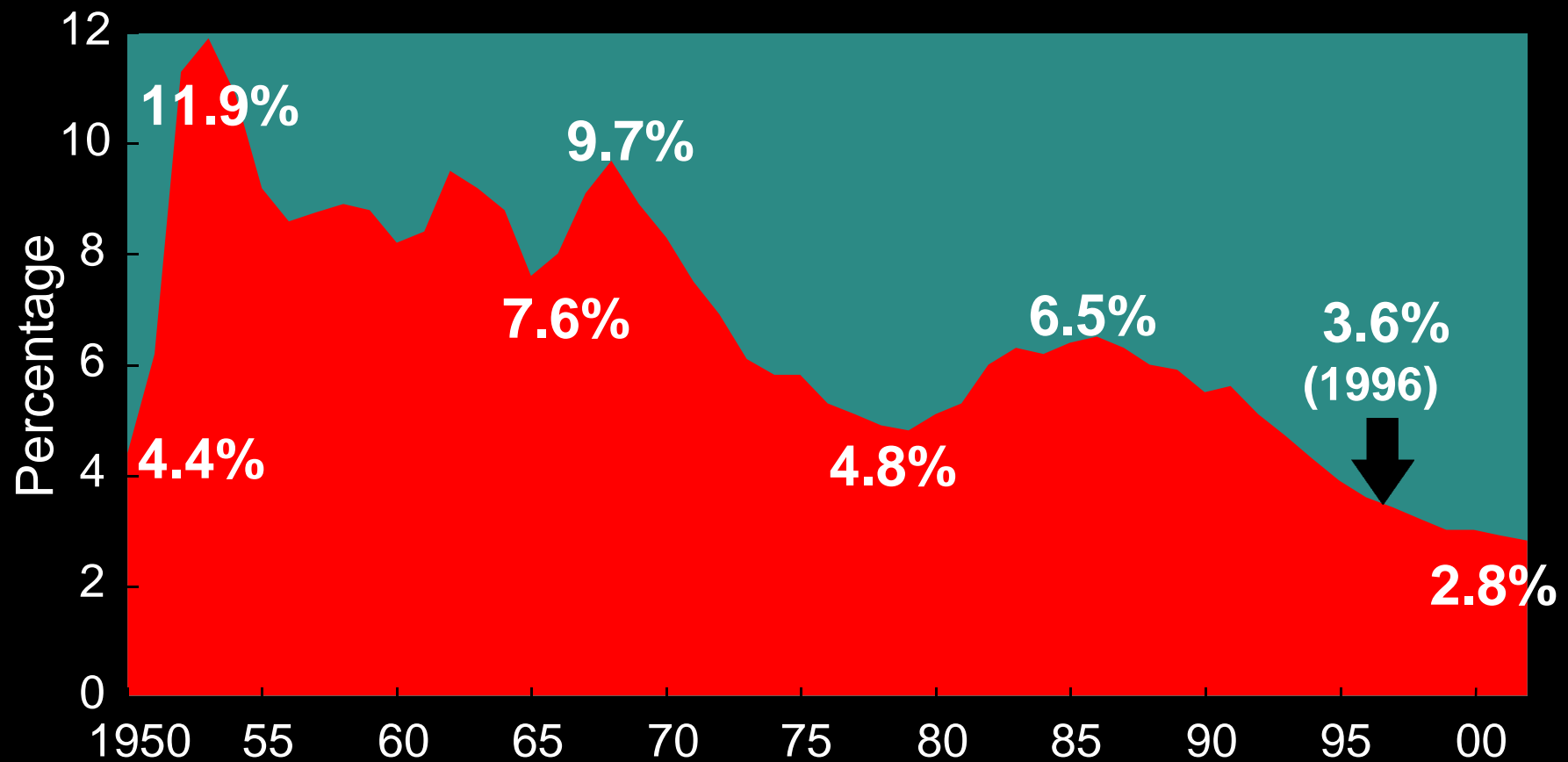
Source: Air Force Magazine, Date: Apr 95/May 96

Changing Technical Environment

- DoD doesn't dominate the market
- Product development time much shorter
  - Two year technical obsolescence cycle
- Mostly precedented/commercial technology
  - More integration than development

Evolutionary Acquisition

- Very hard to define requirements
  - Cannot completely understand in advance
- System usage changes the requirement
  - Actual usage always different than planned
- You can't satisfy 100% of requirement
  - 80% solutions may be only option
- Small steps work better than giant leaps

Evolutionary Development
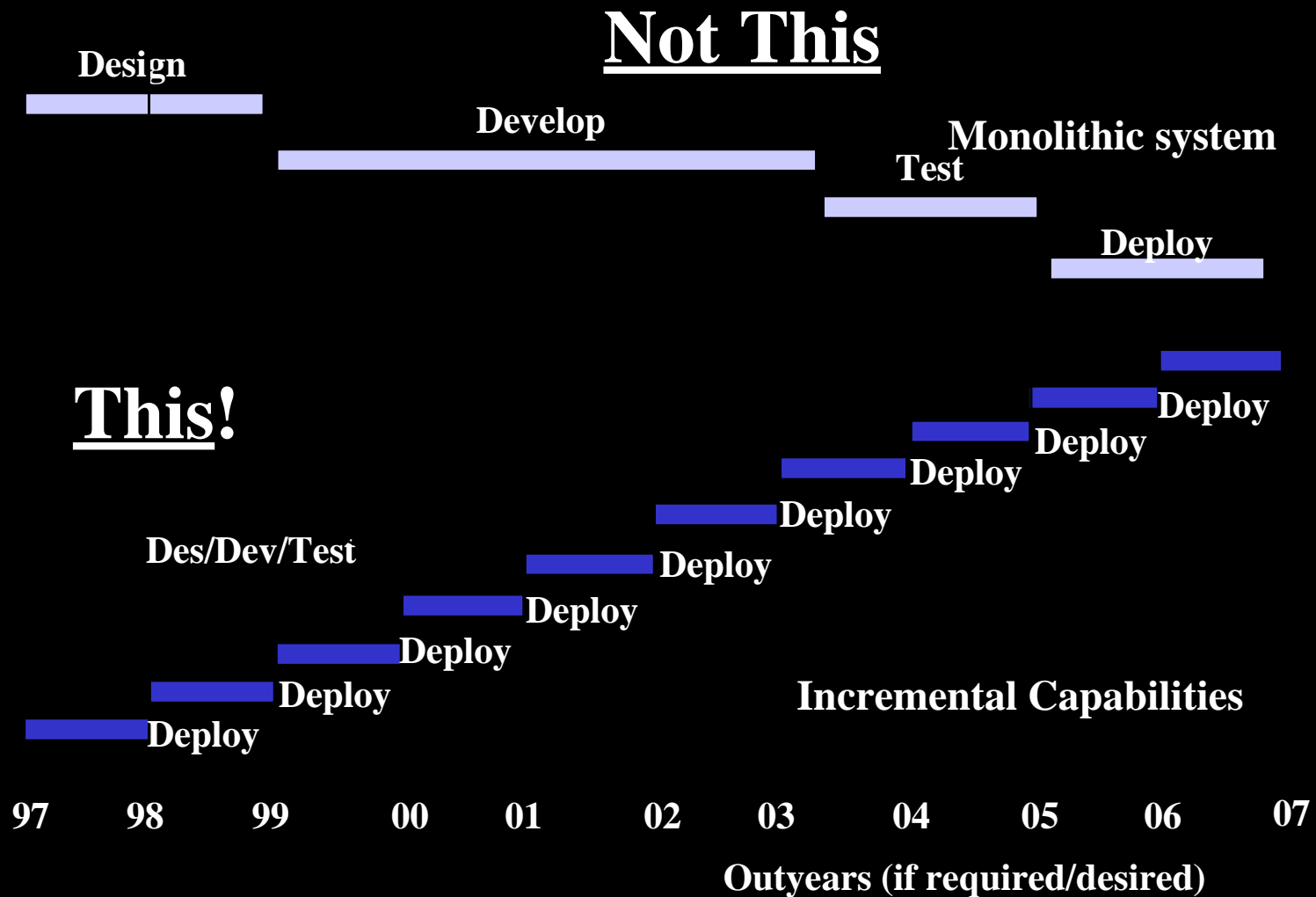
ESC Process

Requirement

NO

CO Strategic Business Decision

YES

DII AF PK/ FM/MQ Initial Staffing Decision

HOW TO IPT

Execute

ASP

AWARD

YES

Feedback

ADO

Quick PASS

Preliminary **A**cquisition **S**trategy **S**ession

Feedback

PAD

NEXT STEP OF SPIRAL DEVELOPMENT

Acquisition Process -- A Model

Requirement

Funding

Identification of Technical Solutions

Identification of Business Solution

Non-Competitive

"One Pass"

Contract Development

Government/Contractor Discussions

Day 65

Contractor Performance

Quick PASS

Day 2

ASP

Day 15

Competitive

Solicitation Development

Offeror Proposal Prep

Proposal Eval

Day 95

Existing Contract Vehicle

TO/DO Issuance

As Early as Day 35

Feedback

INDUSTRY INVOLVEMENT

FUZZY FRONT END
Current ESC Process

Product Line Contracting

How do you contract for fast turn around system integration capability?

- Compete for technical domain expertise
  - Knowledge of existing/emerging technologies AND knowledge of the customer
- Three ESC Contract Examples
  - Integrated Maintenance Data System (IMDS)
  - Portable, Reusable, Integrated Software Modules (PRISM)
  - Command & Control Product Lines (CCPL)

Product Line Contracting

- Many C2 product components are functionally similar
- Many C2 program components have analogs in civilian information systems
  - Commercial-off-the-shelf (COTS) products may be available & viable for military use
- Commercial market accelerated software development towards standards-based, open systems
  - Easier & cheaper to integrate than to build from scratch
- Essence of Product Line Contracting is integrating components to meet user needs

Common Component Examples

- External Interfaces

- Message Processing

- Database Management

- System Management

- Geographic Information

- Table Generation

- Alarm Generation

PRISM Lessons Learned

- 82% of command center components are functionally similar

- Majority of command center components do have analogs in civilian information systems
  - 64 COTS products have been identified to date

- Commercial market has driven software development to standards-based, open systems
  - PRISM integrated 7.3M source lines of code (SLOC) with only .1M SLOC developed

- Eight programs, using PRISM, demonstrated cost savings of 56% & time savings of 66%

Benefits to the User

- Provides early development prototyping
  - Early validation of requirements & designs
  - Risk and feasibility analysis
  - Validated source data for cost estimates
- Decreases technical risks
  - Proven architectures incorporate industry standards using tested software components
- Reduces development cost & time
  - Product lines & software reuse provide overall savings
- Enhances participation by life-cycle end user
  - Insures functional & performance needs are satisfied

The Future

- Few Golden Cash Cows
- More IDIQ/Product Line Contracts
  - More Actions, Fewer Dollars
- More emphasis on Total System Architecture
- Much closer relationship between ESC, operators and contractors
- Annual "Experiments" to demonstrate technology
- Things will move <u>very</u> fast
  - You snooze...you lose